

IN THE CLAIMS:

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Cancel claims 16, 17, 81, 136-145 and 150-151.

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Claim 1 (amended): In combination for [with] use in a system including a plurality of vehicles each responsive to an individual address and to a plurality of commands for providing individual operations of such vehicles in accordance with such commands, a plurality of pads, each individual one of the pads including a plurality of
5 switches having first and second states of operation for providing an address to select any individual one of the vehicles and for providing commands to such individual one of the vehicles for operating such individual one of the vehicles in accordance with such commands,

10 a central station responsive to the [closure] operation of the switches in each individual one of the pads in the second state for sending the address and the commands from the individual one of the pads to the individual one of the vehicles,

15 there being an additional switch on each individual one of the pads with first and second states of operation, the additional switch in each individual one of the pads providing in the first state for the operation of the individual one of the vehicles only by [only] such individual one of the pads and providing in the second state for the operation of the individual one of the vehicles by at least another one of the pads in addition to the individual one of the pads, and

means in the central station for providing for the operation of the vehicle by the individual one of the pads and the at least additional one of the pads when the additional switch in the individual one of the pads is in the second state.

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Claim~~2~~³ (amended): In a combination as set forth in claim~~2~~¹,

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each of the pads including, in the plurality of switches, first switches for controlling the movements of the individual one of the vehicles and including, in the plurality of switches, second switches for controlling other operations of the vehicles than the movements of the vehicles, and

means responsive in the central station to the operation of the first switches in the individual one of the pads for providing [controlled] movements of the individual one of the vehicles and responsive in the central station to the operation of the second switches in the individual one of the pads for providing [controlled] operations of the individual one of the vehicles other than the movements of such vehicle.

⁴
Claim~~2~~³ (amended): In a combination as set forth in claim~~2~~³,

means responsive in the central station to the operation of the additional one of the switches in the individual one of the pads in the second state and to the operation of the first switches in the individual one of the pads and the at least additional one of the pads for providing [controlled] movements of the individual one of the vehicles in accordance with the operation of the first switches in the individual one of the pads and the additional one of

the pads and responsive in the central station to the operation of the second switches in the individual one of the pads and the additional one of the pads for providing [controlled] operations of the individual one of the vehicles other than the movements of such vehicle in accordance with the operation of the second switches in the individual one of the pads and the additional one of the pads.

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Claim⁵ (amended): In combination in a central station for use with a plurality of pads and a plurality of vehicles wherein each of the pads includes a plurality of switches for controlling the operation of an individual one of the vehicles,

5 first means responsive in the central station to an operation [the closure] of first switches in the plurality in an individual one of the pads in a pattern for producing first signals providing an address identifying any individual one of the vehicles,

10 second means responsive in the central station to an operation [the closure] of second switches in the plurality in the individual one of the pads for producing second signals providing for an operation of the individual one of the vehicles in accordance with such switch operations [closures], and

third means responsive in the central station to the operation [closure] of a third switch in the plurality in the individual one of the pads for providing for an operation of the individual one of the vehicles by at least a second one of the pads simultaneously with the operation of the individual one of the vehicles by the individual one of the pads, [and]

the fourth means being operative in the central station to send to the individual one of the vehicles from the at least additional [second] one of the pads, at substantially the same time as [simultaneously with] the sending to the individual one of the vehicles from the individual one of the pads, the third signals providing the address identifying the individual one of the vehicles and the fourth signals providing commands for obtaining the operation of the vehicle in accordance with the pattern of [closure] operation of the second switches in the second one of the pads.

Claim 6 (amended): In combination for controlling the operation of an individual one of a plurality of vehicles,

a [handheld] first pad included in a plurality of pads and including a first switch operable in a pattern providing an address of the individual one of the plurality of vehicles and including a plurality of switches individually operable in a pattern providing for operations of the individual one of the vehicles in accordance with the pattern of [closures] operations of such switches,

means in the [handheld] first pad for providing a plurality of light indications each for [an individual] a particular one of the vehicles in the plurality,

means in the [handheld] first pad for providing first light indications for the vehicles in the plurality when such [handheld] first pad has not provided an address for any of the vehicles in the plurality, and

means in the [handheld] first pad for providing a second illumination for the individual one of the vehicles when the [handheld] first pad provides the address for such individual one of the vehicles[.].

the first pad including an additional switch having first and second states of operation and operative in the first state to provide for an operation of the vehicle only by the pad and operative in the second state to provide for an operation of the vehicle by other pads in the plurality in addition to the pad.

Claim ⁹ (amended): In a combination as set forth in claim ⁸,

[there being a plurality of handheld pads,]

each of the [handheld] pads, other than the first pad, including a switch corresponding to the first switch in the first pad and sequentially operative to select successive ones of the vehicles in the plurality, and

means responsive in each of the [handheld] pads to the sequential operations of the switch in the pad for skipping the [selection] addressing by the [handheld] pad of a vehicle in the plurality which has [previously] already been addressed by another one of the pads in the plurality.

Claim 8, lines 4 and 5, change "handheld" to -first-.

Claim ¹¹9 (amended): In combination for operating a vehicle in accordance with addresses and commands provided by a pair of [handheld] pads and transmitted by a central station to the vehicle,

means in the vehicle for receiving the addresses and commands provided by the pads and transmitted by the central station,

means in the vehicle for identifying the [received] addresses received from the pads as those of the vehicle,

means responsive in the vehicle to the identification of the addresses received from the pads as those of the vehicle for executing the received commands from the [handheld] ^{the} pads when the received commands from the pair of the pads are complementary, and

means responsive in the vehicle to the identification of the [received] addresses received from the pair of the pads as those of the vehicle for ignoring the [received] commands received from the [handheld] pads when the received commands are contradictory.

Claim ¹²10 (amended): In a combination as set forth in claim ¹¹9,

means responsive in the vehicle to the discontinuance of one of the pads in the [plurality] pair in addressing the vehicle for continuing the response of the vehicle to the addresses and commands from the other one of the pads in the pair.

Claim 11 (amended): In combination for use in a system including a plurality of vehicles each responsive to an individual address and to a plurality of commands for providing individual operations of such vehicle in accordance with such commands, a plurality of pads each operative to provide an address for selecting any individual one of the vehicles and to provide commands to such individual one of the vehicles for operating such individual one of the vehicles in accordance with such commands,

5 a central station connected to individual ones of the pads and responsive to the address and the commands from each of the connected pads for sending the address and the commands from such pad to the vehicle selected by such pad to obtain an operation of such vehicle in accordance with such commands, [and]

10 each of the pads including a switch having first and second states of operation and operative in the first state to provide an operation of an individual one of the vehicles in the plurality only by such pad and operative in the second state to provide for the operation of such individual one of the vehicles simultaneously by such pad and at least another one of the pads, and

15 means in the central station for obtaining the interrogation at each instant of only the individual ones of the pads in the plurality that are connected to the central station [providing addresses and commands to obtain the operation of vehicles in the plurality].

Claim ¹⁴12 (amended): In a combination as set forth in claim ¹³11,

means in the central station for transmitting the addresses and commands from the interrogated pads to the vehicles in the plurality to obtain the operation, in accordance with such commands, of the vehicles addressed by the central station [on the cyclic basis].

Claim ¹⁵13 (amended): In a combination as set forth in claim ¹⁴12,

[each of the pads including a switch having first and second states of operation and operative in the first state to provide an operation of an individual one of the vehicles in the plurality only by such pad and operative in the second state to provide for the operation of such individual one of the vehicles simultaneously by such pad and another one of the pads.]

the central station being operative to send to the vehicles only changes in the addresses and commands from the pads relative to the addresses and commands previously sent by the pads to the vehicles.

Claim ¹⁶18 (amended): In combination,
a plurality of vehicles,

a plurality of pads, each individual one of the pads including a plurality of switches having [open] first and [closed] second states of operation for providing an address to select any individual one of the vehicles and for providing commands to such individual

one of the vehicles for operating such individual one of the vehicles in accordance with such commands,

10 a central station responsive to the [closure] operation of the switches in the first state in such individual one of the pads for sending the commands to the individual one of the vehicles addressed by such individual one of the pads,

first means including a memory in the central station for storing in the memory the identity of the individual one of the vehicles last addressed by such individual one of the pads, and

15 18 [second means] an additional switch disposed in the ^{*individual one of the pads*} ~~central station~~ and having first and second states of operation for providing for the selection again, in the second state of operation of the additional switch, by such individual one of the pads of the individual one of the vehicles stored in the memory for such individual one of the pads after such individual one of the pads has selected any one of the vehicles other than the individual one of the vehicles or after the individual one of the pads has failed to provide a command to the
20 individual one of the vehicles for a particular period of time.

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Claim 19¹⁷ (amended): In a combination as set forth in claim 18¹⁶,

5 each of the pads including a particular switch having [open] first and [closed] second states of operation and operable to the [closed] second state on a repetitive basis for a particular number of times to select [the] any individual one of the vehicles, each of the pads including [additional] further switches having [open] first and [closed] second states and

operable to the [closed] second state to provide the commands for operating the individual one of the vehicles, and

[the] second means responsive in the central station [being responsive] to the operation of the additional switch in the individual one of the pads in the second state and to the operation of any one of the [additional] further switches in the individual one of the pads to the [closed] second state, after such individual one of the pads has selected one of the vehicles other than the individual one of the vehicles or after the individual one of the pads has failed to provide a command to the individual one of the vehicles for a particular period of time, for providing for the [selection] addressing again by such individual one of the pads of such individual one of the vehicles.

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Claim 20 (amended): In combination for use with a central station and a plurality of vehicles for selecting and operating individual ones of the vehicles in accordance with addresses and commands provided by the central station,

a [hand held] pad in a plurality of pads,

5 a first switch in the pad, the first switch having first [open] and [closed] second states and operable on a repetitive basis to the [closed] second state for a particular number of times to select an individual one of the vehicles to be addressed by the central station,

a plurality of additional switches in the pad, the additional switches having [open] first and [closed] second states and [being] operable to the [closed] second state in a

10 particular pattern to obtain the operation of the individual one of the vehicles in accordance with the pattern of [closure] operation of the additional switches in the second state,

a plurality of light indications in the pad, each of the light indications being associated with a different one of the vehicles in the plurality,

means for energizing the light indications in sequence on a cyclic basis before any [closures] operations of the first switch in the pad to the second state to select the individual one of the vehicles in the plurality, [and]

means for continuously energizing the individual one of the light indications associated with the individual one of the vehicles when the first switch in the pad has been operated to the second [closed] state on the repetitive basis for the particular number of times to select the individual one of the vehicles to be addressed by the central station[.], and

means for skipping the energizing of the light indications associated with the vehicles addressed by the pads in the plurality other than the pad when the first switch in the pad is operated on the repetitive basis to address the individual one of the vehicles.

Claim 21 (amended): In a combination as set forth in claim 20,

means in the pad for providing for the addressing of the individual one of the vehicles by another pad in the plurality in addition to the addressing of the individual one of the vehicles by the pad.

[the pad constituting a first pad,

there being a plurality of additional pads each having the same construction as the first pad, and

means for skipping the light indications in the first pad of the vehicles selected by the additional pads when the first switch in the first pad is operated to the closed state on the repetitive basis.]

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Claim 22 (amended): In a combination as set forth in claim 20,

means for sending to the central station a first plurality of binary indications representing the repetitive operation of the first switch in the pad to the [closed] second state to provide an address by the central station for the individual one of the vehicles in the plurality and for sending to the central station a second plurality of binary indications representing the pattern of [closure] operation of the additional switches in the pad to the second state to provide the commands by the central station for operating the individual one of the vehicles.

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Claim 23 (amended): In combination for use in a system including a plurality of vehicles each responsive to an individual address and to a plurality of commands for providing individual operations of the vehicles in accordance with such commands, a plurality of pads each operative to provide an address for selecting any individual one of the vehicles and to provide commands to such individual one of the

vehicles for operating such individual one of the vehicles in accordance with such commands,

a central station, [connected to the pads,] the pads being connected to the central station,

first means in the central station for interrogating the pads to determine the address and the commands provided by such pads,

second means responsive in the central station to the interrogation provided by the first means in the central station concerning the address and the commands from each pad for sending the address and the commands from such pad to the vehicle addressed by such pad to obtain an operation of such vehicle in accordance with such commands,

the first means in the central station being operative to interrogate any additional pad connected to the central station at the instant that such additional pad is connected to the central station, and

the second means being responsive in the central station to the interrogation provided [on the cyclic basis] by the first means in the central station concerning the address and the commands from the pads in the plurality and from the additional pad for sending signals representing the address and the commands from each such pad to the vehicle addressed by such pad, instantaneously after the additional pad is connected to the central station, to obtain an operation of such vehicle in accordance with such commands without affecting the interrogation of the pads in the plurality by the central station.

Claim 24 (amended): In a combination as set forth in claim 23,
third means in the central station for providing for the sending [transmitting] at
each instant by the second means of only the commands from the pads which are providing
changes in addresses or commands at that instant.

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Claim 25 (amended): In a combination as set forth in claim 23,
the first means being operative to eliminate from interrogation by the central
station any one of the pads disconnected in the plurality from the central station and to
provide such elimination at the instant that the pad is disconnected from the central station
and without affecting the interrogation of the other pads by the central station and to provide
for the addressing by any of the pads, other than the disconnected pad, of the vehicle
previously addressed by the disconnected pad.

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Claim 26 (amended): In combination for use in a system including a plurality of
vehicles each responsive to an individual address and to a plurality of commands for
providing individual operations of the vehicles in accordance with such commands,
a plurality of pads each operative to provide an address for selecting any
individual one of the vehicles and to provide commands to such individual one of the
vehicles for operating such individual one of the vehicles in accordance with such
commands,

a central station [connected to the pads], the pads being connected to the central station,

first means in the central station for interrogating the pads to determine the address and the commands provided by such pads,

second means responsive in the central station to the interrogation provided by the first means in the central station concerning the address and the commands from each pad for sending signals representing the address and the commands from such pad to the vehicle addressed by such pad to obtain an operation of such vehicle in accordance with such commands,

the first means in the central station being operative to eliminate, from the interrogation, any one of the pads disconnected in the plurality from the central station and to provide such elimination at the instant that the pad is disconnected from the central station and to provide such elimination without affecting the interrogation of the other pads by the central station and to provide for an addressing by any pad, other than the disconnected pad, of the vehicle previously addressed by the disconnected pad,

the second means being responsive in the central station to the interrogation provided by the first means in the central station concerning the address and the commands from each of the pads interrogated by the central station for sending the signals representing the address and the commands from each such pad to the vehicle addressed by such pad to obtain an operation of such vehicle in accordance with such commands.

third means in the central station for [transmitting] providing for the transmission

at each instant by the second means only of the commands from the pads which are providing changes in addresses or commands at that instant.

Claim 28 (amended): In combination for use in a system including a plurality of vehicles each responsive to an individual address and to a plurality of commands for providing individual operations of the vehicles in accordance with such commands.

a plurality of pads each including a first switch having [open] first and [closed] second states and operative to provide an address to any individual one of the vehicles dependent upon the number of the operations of such switch [closures] in the second state and including [a plurality of] second switches each having [open] first and [closed] second states and operative in the [closed] second state to provide a particular operation of the individual one of the vehicles.

a central station responsive to the [closures] operation of the first switch in each of the pads in the second state for providing an address to any individual one of the vehicles dependent upon the number of operations of such first switch [closures] in such pad in the second state and responsive to the [closures] operations of the second switches in such pad in the second state for providing signals representing operations to be performed by such individual one of the vehicles, and

means responsive in the central station to the [closures] operations in the second state of [individual pairs of] the second switches providing in [each] a pair of the pads contradictory commands to the individual one of the vehicles for converting such contradictory commands to signals providing specialized commands different from the commands provided by the [closure] operation of the different ones of the second switches in such pads.

Claim 29 (amended): In a combination as set forth in claim 28,
means in the central station for providing at each instant only the commands from the pads which are providing changes in addresses or commands at that instant, and
means in the central station for sending to the vehicles in the plurality the commands provided by the last mentioned means in the central station.

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Claim 30 (amended): In combination for use with a plurality of [hand held] pads each [manually] operable to provide signals representing addresses and commands,
a central station responsive to the addresses and commands from the [hand held] pads for providing for each of the pads a first plurality of signals representing the address of any individual one of the vehicles and a second plurality of signals representing the commands for operating such individual one of the vehicles, the first and second pluralities of signals provided at the central station for each of the pads occurring at a particular rate selected in a particular range of rates,

10 the central station also providing a plurality of start signals at the particular rate,
 a plurality of vehicles each having an individual address and each including first
 means responsive to the signals representing the individual address for such vehicle and
 responsive to the second signals providing the commands for such vehicle for operating such
 vehicle in accordance with such commands, and

means responsive in each of the vehicles to the start signals from the central
 15 station for determining the particular rate of occurrence of the start signals and for providing
 for the response of the first means in the vehicle, at the particular rate of occurrence of the
 start signals, to the signals representing the individual address of [each] the vehicle and to
 the second signals providing the commands for such vehicle.

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 Claim ~~32~~ (amended): In a combination as set forth in claim ~~30~~,

the central station being operative in a first mode to provide for the addressing of
 each individual one of the vehicles by only one of the pads in the plurality and being
 operative in a second mode to provide for the addressing of each individual one of the
 5 vehicles by at least two (2) of the pads in the plurality.

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 Claim ~~33~~ (amended): In combination,

a plurality of vehicles,

a plurality of [hand held] pads each including a first switch having [open] first and
 [closed] second states and operable in the [closed] second state to [select] address any

5 individual one of the vehicles dependent upon the number of [closures] operations of the first switch in the second state and each including a plurality of second switches each having [open] first and [closed] second states, the second switches for each of the pads being operable in the [closed] second state in a pattern providing an operation of the selected vehicle dependent upon such switch [closures] operations in the second state,

10 a central station,

first means in the central station for interrogating the pads in the plurality to determine the number of [closures] operations of the first switch in the second state for each of the pads and the pattern of [closures] operations of the second switches in the second state for each of the pads,

15 second means in the central station for providing, for each of the pads, a first plurality of signals providing an address of any one of the vehicles dependent upon the number of [closures] operations of the first switch in such pad in the second state and a second plurality of signals providing commands dependent upon the pattern of [closure] operation of the second switches in such pad in the second state, the first and second signals
20 for each of the pads occurring at a particular rate,

third means in the central station for providing a plurality of start signals at the particular rate,

fourth means responsive in each of the vehicles to the start signals at the particular rate for operating upon the first plurality of signals in each of the pads at the particular rate
25 to identify the address individual to such vehicle and for operating upon the second plurality

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of signals at the particular rate to identify the commands related to the address individual to such vehicle, and

fifth means for operating each vehicle in accordance with the commands provided for such vehicle.

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Claim ~~34~~ (amended): In a combination as set forth in claim ~~33~~,

sixth means associated in the central station with the [fifth] second means for [transmitting] providing for the transmittal to the vehicles by the second means at each instant only of the signals representing changes in addresses or commands from the pads at that instant.

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Claim 35 (amended): In a combination as set forth in claim 33,

each of the pads including an additional switch having first and second states of operation and providing in the first state of operation for the addressing by such pad of one of the vehicles not addressed at that time by any of the other pads and providing in the second state of operation for the addressing of the one of the vehicles by the pad and by [addressed at that time by] at least another one of the pads.

Claim 36 (amended): In combination for use with a plurality of vehicles,
a plurality of pads each operative to [identify] address any individual one of the
vehicles [addressed by such pad] and to provide a plurality of binary indications providing

commands for operating the [individual one of the] addressed vehicle[s identified by such address],

a central station,

first means operatively coupled in the central station to the pads in the plurality for providing packets of signals identifying for each pad the individual one of the vehicles addressed by such pad and the commands for operating the individual one of the vehicles, and

second means responsive in each vehicle to the same identity of the signals providing the commands in two (2) successive packets addressed to such vehicle by the first means in the central station for operating such vehicle in accordance with the pattern of the signals in such packets.

Claim 37 (amended): In a combination as set forth in claim 36,

means in the central station for interrogating the pads on a cyclic basis to obtain binary indications from each of the pads, on the cyclic basis with the other pads, of the individual one of the vehicles addressed by such pad and the binary indications providing commands for operating the individual one of the vehicles addressed by such pad.

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Claim 38 (amended): In a combination as set forth in claim 36,
means in the central station for transmitting to the vehicles at each instant only the
binary indications from [th epads] the pads which are providing changes in addresses or
commands at that instant.

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Claim ~~40~~ (amended): In combination for use in a vehicle for moving the vehicle
in accordance with commands which are provided by a [handheld] pad to control the
movements of the vehicle and which are converted by a central station to commands
addressed by the central station to the vehicle to obtain the movements of the vehicle,
a pair of left wheels in the vehicle, the left wheels being spaced from each other in
a longitudinal direction,

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a pair of right wheels in the vehicle, the right wheels having the same spacing in
the vehicle in the longitudinal direction as the left wheels,

10 first means in the vehicle for receiving the commands addressed to the vehicle
from the central station,

a first motor in the vehicle for moving the left wheels in the vehicle in the
longitudinal direction,

a second motor in the vehicle for moving the right wheels in the vehicle in the
longitudinal direction,

15 the commands addressed to the vehicle from the central station including first
signals for operating the first motor and second signals for operating the second motor,

second means responsive in the vehicle to the first and second signals received by the vehicle from the central station for [normally] accelerating the first and second motors in progressive increments to the speeds commanded by the central station to such motors for movement of the vehicle in the longitudinal direction, and

third means responsive in the vehicle to the first and second signals received by the vehicle from the central station for operating the first and second motors at the same speed, without any progressive increments in speed, for movement of the vehicle in the longitudinal direction[,] when one of the motors has been previously operated at a different speed than the other motor, the same speed constituting the higher of the speeds provided by the first and second motors.

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Claim ~~41~~³⁹ (amended): In a combination as recited in claim ~~40~~³⁸,

fourth means responsive in the vehicle to the first and second signals received by the vehicle from the central station for converting the first and second signals to pulse width modulations in progressive periods of time, the pulse width modulations for each of the first and second motors at each instant [being] having duty cycles dependent upon the speed at which such motor is to be operated at that instant,

the operation of the second and third means at each instant being dependent upon such pulse width modulations at that instant and the duty cycles of such pulse width modulations at that instant.

Claim 43⁴⁴ (amended): In combination for use in a vehicle for moving the vehicle

in accordance with commands which are provided by a [handheld] pad to control the movements of the vehicle and which are converted by a central station to commands addressed by the central station to the vehicle to obtain the movements of the vehicle,

5 a pair of left wheels in the vehicle, the left wheels being spaced from each other in a longitudinal direction,

CP a pair of right wheels in the vehicle, the right wheels having the same spacing in the longitudinal direction as the left wheels,

10 a first motor in the vehicle for moving the left wheels in the vehicle in the longitudinal direction,

a second motor in the vehicle for moving the right wheels in the vehicle in the longitudinal direction,

the commands addressed to the vehicle from the central station including first signals for operating the first motor and second signals for operating the second motor,

15 first means in the vehicle for receiving the commands addressed to the vehicle from the central station,

second means responsive in the vehicle to the first and second signals received by the vehicle from the central station for operating the first and second motors in accordance with such signals, and

20 third means responsive in the vehicle to the failure of the vehicle to receive the first and second signals for a particular period of time for maintaining the same operation of

the first and second motors for such particular period of time as the operation of the motors upon the last reception by the vehicle of the first and second signals from the central station.

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Claim 44 (amended): In a combination as set forth in [Exhibit] claim 43,

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fourth means responsive in the vehicle to the first and second signals received by the vehicle from the central station for [normally] accelerating the first and second motors in progressive increments to the speeds commanded by the central station to such motors for movement of the vehicle in the longitudinal direction,

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Claim 45 (amended): (White claim is not used) In a combination as set forth in [Exhibit] claim 43,

fourth means responsive in the vehicle to the first and second signals received by the vehicle from the central station for operating the first and second motors in accordance with such first and second signals only when the first means [receiver] has received the same first and second signals from the central station a plurality of successive times.

Claim 46 (amended): In combination,

a plurality of [hand held] pads,

a plurality of vehicles,

each of the [handheld] pads providing first binary indications representing [a

5 selection] an address of any individual one of the vehicles and second binary indications representing individual operations to be provided by such vehicle,

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a central station responsive to the first and second binary indications from the different pads [on a cyclic basis] for producing for each of the pads first signals providing an individual address for the individual one of the vehicles [selected] addressed by such pad and second signals providing commands for moving such vehicle in a particular direction and for operating such vehicle,

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means responsive in each of the vehicles to the first signals addressing such vehicle from the central station and to the second signals from the central station for such vehicle for moving such vehicle and operating such vehicle in accordance with the commands provided by the central station to such vehicle, and

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means operative in each of the vehicles for continuing to provide a movement of such vehicle for a particular period of time in accordance with the last commands addressed to such vehicle by the central station when the vehicle fails to receive any commands addressed to such vehicle during such particular period of time.

Claim 47 (amended): in a combination as set forth in claim 46,

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means in each of the vehicles for providing for (an operation of) such vehicle in the an inactive but powered state at the end of the particular period of time when such vehicle fails to receive any commands addressed to such vehicle during such particular period of time.

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Claim 48 (amended): In a combination as set forth in claim 46,
means responsive in each of the vehicles to the commands addressed to the
vehicle relating to movements of the vehicle at a particular speed for accelerating the vehicle
in progressive increments to the particular speed [to obtain such movements].

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Claim 49 (amended): In combination,
a plurality of [hand held] pads,
a plurality of vehicles,
each of the [handheld] pads providing first binary indications representing a
selection of any individual one of the vehicles and second binary indications representing
individual operations to be provided by such vehicle,
a central station responsive to the first and second binary indications from the
different pads [on a cyclic basis] for producing for each of the pads first signals providing an
individual address for [the] any individual one of the vehicles selected by such pad, the pads
10 being connected to the central station.

each of the vehicles including a pair of left wheels spaced from each other in a
longitudinal direction and a pair of right wheels spaced from each other in the longitudinal
direction and including a first motor for moving the left wheels and a second motor for
moving the right wheels,

15 the commands addressed to the vehicle from the central station including second
signals for operating the first motor and third signals for operating the second motor,

first means in each of the vehicles for receiving the first, second and third signals addressed to such vehicle from the central station and

second means responsive in each of the vehicles to the second and third signals received by the vehicle from the central station for [normally] accelerating the first and second motors in progressive increments to the speeds commanded by the central station to such motors for movement of such vehicle in the longitudinal direction.

Claim 51 (amended): In a combination as set forth in claim [49] 50,

means operative in each of the vehicles for continuing to operate the first and second motors for a particular period of time in accordance with the last ones of the second and third signals received by such vehicle from the central station when such vehicle fails to receive the second and third signals addressed to such vehicle during such particular period of time.

Claim 52 (amended): In combination,

a plurality of [hand held] pads,

a plurality of vehicles,

each of the [hand held] pads providing first binary indications representing a

selection of any individual one of the vehicles and second binary indications representing individual operations to be provided by such vehicles,

10 a central station responsive to the first and second binary indications from the different pads [on a cyclic basis] for producing for each of the pads first signals providing an individual address for [the] any individual one of the vehicles selected by such pad and second signals providing commands for moving such vehicle in a particular direction and for operating such vehicle,

15 first means in each of the vehicles for receiving the first and second signals from each of the pads,

second means responsive in each of the vehicles to the second signals addressed to such vehicle for determining whether successive ones of the second signals addressed to such vehicle [on the cyclic basis] are identical, and

20 third means in each of the vehicles for operating such vehicle in accordance with the second signals addressed to such vehicle when the second means in such vehicle determines that the successive ones of the second signals addressed to such vehicle [on the cyclic basis] are identical.

Claim 53 (amended): In a combination as set forth in claim 52,

5 the third means in each of the vehicles being operative to operate such vehicle in accordance with the second signals addressed to such vehicle in the second of the successive ones of the second signals addressed to such vehicle [on the cyclic basis] when the second means in such vehicle determines that the successive ones of the second signals addressed to such vehicle [on the cyclic basis] are identical.

Claim 54 (amended): In a combination as set forth in claim 52,

the first and second signals for each of the vehicles being in the form of packets each having a first particular number of the first signals and a second particular number of the second signals,

fourth means for determining whether at least a particular percentage of the packets addressed to each of the vehicles has the first particular number of the first signals and the second particular number of the second signals in such packets during a particular period of time, and

fifth means for operating each of the vehicles in accordance with the second signals in the packets addressed to such vehicle when the fourth means in such vehicle determines that at least the particular percentage of the packets addressed to such vehicle during the particular period of time has the first particular number of the first signals and the second particular number of the second signals in the packets [during the particular period of time].

Claim 55 (amended): In combination,

a plurality of [hand held] pads,

a plurality of vehicles,

each of the [hand held] pads providing first binary indications representing [a

selection] an addressing of any individual one of the vehicles and second binary indications representing individual operations to be provided by such addressed vehicle[s],

10 a central station responsive to the first and second binary indications from the different pads [on a cyclic basis] for producing for each of the pads [on the cyclic basis] first signals providing an individual address for [the] any individual one of the vehicles selected by such pad and second signals providing commands for moving such vehicle in a particular direction and for operating such vehicle,

15 first means in each of the vehicles for receiving the first and second signals from each of the pads,

the first and second signals for each of the vehicles being in the form of packets each having a first particular number of the first signals and a second particular number [member] of the second signals,

20 second means for determining whether at least a particular percentage of the packets addressed to each of the vehicles during a particular period of time has the first particular number of the second signals in each packet [during a particular period of time], and

25 third means for operating each of the vehicles in accordance with the second signals in the packets addressed to such vehicle when the [fourth] second means in each vehicle determines that at least the particular percentage of the packets addressed to such vehicle during the particular period of time has the second particular number of the second signals in the packets [during the particular period of time].

Claim 56 (amended): In a combination as set forth in claim 55,

the central station being operative to interrogate

each of the pads [on the cyclic basis] to determine the first and second binary indications from such pad[s], and

means in the central station for sending to the vehicles at each instant only the [second] binary indications representing changes in the addresses or commands from the pads at that instant.

Claim ⁵⁵~~57~~ (amended): In combination in a vehicle for use [in] with a central

station operative to receive, from a plurality of pads [on a cyclic basis], first binary indications representing the address of the vehicle and second binary indications

representing operations to be performed by the vehicle and operative to send to the vehicle

first signals in accordance with the first binary indications and second signals in accordance with the second binary indications,

first means in the vehicle for receiving the first and second signals from the central station [on the cyclic basis] for each of the pads,

second means in the vehicle for determining whether successive ones of the second signals addressed to such vehicle [on the cyclic basis] are identical, and

third means in each of the vehicles for operating such vehicle in accordance with the second signals addressed to such vehicle when the second means in such vehicle

determines that the successive ones of the second signals addressed to such vehicle ^{on the} cyclic basis } are identical.

⁵⁶ Claim ⁵⁵ ~~58~~ (amended): In a combination as set forth in claim ~~57~~ wherein
the successive ones of the second signals are addressed to the vehicle on a cyclic basis and wherein

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the third means in each of the vehicles is operative to operate such vehicle in accordance with the [successive] second ones of the second signals addressed to such vehicle [on the cyclic basis] when the second means in such vehicle determines that the successive ones of the second signals addressed to such vehicle [on the cyclic basis] are identical.

⁵⁷ Claim ⁵⁵ ~~59~~ (amended): In a combination as set forth in claim ~~58~~ ⁵⁵ ~~57~~, including,
fourth means responsive to first ones of the second signals addressed to such vehicle [on the cyclic basis] for moving the vehicle, and
fifth means responsive to second ones of the second signals addressed to such vehicle [on the cyclic basis] for providing operations of the vehicle other than moving the vehicle.

Claim 60 (amended): In a combination as set forth in claim 59,

the first and second signals for the vehicle being in the form of packets each having a first particular number of the first signals and a second particular number of the second signals,

sixth means for determining whether at least a particular percentage of the packets addressed to the vehicle during a particular period of time has the second particular number of the second signals in such packets [during a particular period of time], and

seventh means for operating the vehicle in accordance with the second signals in the packets addressed to such vehicle when the sixth means in such vehicle determines that at least the particular percentage of the packets addressed to such vehicle during the particular period of time has [at least] the second particular number of the second signals in the packets[, during the particular period of time].

Claim 61 (amended): In combination in a vehicle for use with a central station operative to receive, from a plurality of pads [on a cyclic basis], first binary indications representing the address of the vehicle and second binary indications representing operations to be performed by the vehicle and for sending first signals in accordance with the first binary indications and second signals in accordance with the second binary indications,

first means in the vehicle for receiving the first and second signals from the central station in representation of the binary indications from each of the pads,

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the first and second signals for the vehicle being in the form of packets each having a first particular number of the first signals and a second particular number of the second signals,

second means in the vehicle for determining whether at least a particular percentage of the packets addressed to the vehicle during a particular period of time has the second particular number of the second signal in such packets [during a particular period of time], and

15 third means in the vehicle for operating the vehicle in accordance with the second signals in the packets addressed to such vehicle when the second means in such vehicle determines that at least the particular percentage of the packets addressed to such vehicle during the particular period of time has the second particular number of the second signals in the packets [during the particular period of time].

61

Claim 63 (amended): In combination for use in a system including a central

4 station and a plurality of vehicles and a plurality of pads each [manually] operable to provide
C first binary indications providing an address to any individual one of the vehicles and second
5 binary indications providing commands for operating the individual one of the vehicles and
each operable to provide the first and second binary indications to the central station for the
transmission by the central station to the vehicles of signals indicating the first and second
binary indications from each of the pads,

a microcontroller in the central station,

10 a first line extending between the microcontroller and the pads in the plurality to
provide an interrogation by the central station of such pads [of] with respect to the first and
second binary indications from such pads,

15 a second plurality of lines each extending between the microcontroller and an
individual one of the pads for providing clock signals from the central station to the
individual one of the pads for controlling the time of the interrogation of such individual one
of the pads by the central station, and

a third plurality of [third] lines each extending between the microcontroller and an
individual one of the pads for providing the first and second binary indications from the
individual one of the pads to the central station in response to the interrogation by the central
station to the individual one of the pads.

62
Claim ~~64~~ (amended): In a combination as set forth in claim ~~63~~, 61

the [second] lines in the second plurality introducing the clock signals in sequence
to the different ones of the pads on a cyclic basis to obtain an interrogation of the pads by the
central station when the pads receive the clock signals, and

5 the [third] lines in the third plurality providing the first and second binary
indications from the pads to the central station when the pads are interrogated by the central
station.

⁶³
Claim ~~65~~ (amended): In a combination as set forth in claim ~~63~~, ⁶¹

the [second] lines in the second plurality introducing the clock signals simultaneously to the different ones of the pads to obtain a simultaneous interrogation of the different pads by the central station, and

5 the [third] lines in the third plurality providing the first and second binary indications from the pads when the pads are interrogated by the central station.

⁶⁴
Claim ~~66~~ (amended): In a combination as set forth in claim ~~63~~, ⁶¹

the clock signals having first and second polarities,

the interrogation of the pads in the plurality by the central station occurring when the clock signals on the [second] lines in the second plurality have a particular one of the
5 first and second polarities.

⁶⁷
Claim ~~67~~ (amended): In combination for use in a system including a central

station and a plurality of vehicles and a plurality of pads each [manually] operable to provide first binary indications providing an address to any individual one of the vehicles and second binary indications providing commands for operating the individual one of the vehicles and
5 each operable to provide the first and second binary indications to the central station for the transmission by the central station to the vehicles of the first and second binary indications from each of the pads,

10 a first line extending between the central station and the pads in the plurality to provide an interrogation of such pads by the central station of the first and second binary indications from such pads,

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a second plurality of lines each extending between the central station and an individual one of the pads for providing clock signals from the central station to the individual one of the pads for controlling the time of the interrogation of such individual one of the pads by the central station, and

a third plurality of [third] lines each extending between the central station and an individual one of the pads for providing the first and second binary indications from the individual one of the pads to the central station in response to the interrogation by the central station to the individual one of the pads,

20 the [third] lines in the third plurality also providing binary indications from the central station to each individual one of the pads in the plurality, after the provision of the first and second binary indications from such individual one of the pads to the central station, of the particular one of the vehicles addressed by each individual one of the pads.

68
Claim ⁶⁸ (amended): In a combination as set forth in claim ⁶⁷ ~~67~~,

the [second] lines in the second plurality introducing the clock signals in sequence to the different ones of the pads on a cyclic basis to obtain an interrogation of the pads by the central station when the pads receive the clock signals, and

5 the [third] lines in the third plurality providing the first and second binary indications from the pads to the central station when the pads are interrogated by the central station,

each of the pads having a plurality of lights each indicating a different one of the vehicles, and

10 means for illuminating a particular one of the lights on each of the pads in accordance with the particular one of the vehicles addressed by such pad.

69 67
Claim 69 (amended): In a combination as set forth in claim 67,

the [second] lines in the second plurality introducing the clock signals simultaneously to the different ones of the pads to obtain a simultaneous interrogation of the different pads by the central station, and

5 the [third] lines in the third plurality providing the first and second binary indications from the pads when the pads are interrogated by the central station,

each of the pads having a plurality of lights each indicating a different one of the vehicles, and

10 means for illuminating a particular one of the lights on each of the pads in accordance with the particular one of the vehicles addressed by such pad.

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Claim 70 (amended): In a combination as set forth in claim ~~61~~ ⁶⁹,
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the clock signals having first and second polarities,

the interrogation of the pads in the plurality by the central station occurring when
the clock signals on the [second] lines in the second plurality have a particular one of the
first and second polarities,

the illumination of the particular one of the lights on each of the pads by the
indications from the central station to such pad through the [third] lines in the third plurality
for such pad in representation of the particular one of the vehicles addressed by such pad
occurring when the clock signals on the [second] lines in the second plurality have the other
one of the first and second polarities.

71
Claim 71 (amended): In combination for use in a system including a central
station and a plurality of vehicles and a plurality of pads each [manually] operable to provide
first binary indications providing an address to any individual one of the vehicles and second
binary indications providing commands for operating the individual one of the vehicles and
each operable to provide the first and second binary indications to the central station for the
transmission by the central station to the vehicles of signals representing the first and second
binary indications from each of the pads,

a first line extending between the central station and the pads in the plurality to
provide an interrogation by the central station of such pads [of] with respect to the first and
second binary indications from such pads,

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Amended

a plurality of second lines each extending between the central station and an individual one of the pads for providing clock signals from the central station to the individual one of the pads for controlling the time of interrogation of the individual one of the pads by the central station, and

15 a plurality of third lines each providing an indication from the central station to the individual one of the pads of the vehicle addressed by such individual one of the pads.

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Claim 73 (amended): In a combination as set forth in claim 72,

the second lines introducing the clock signals in sequence to the different ones of the pads on a cyclic basis to obtain an interrogation of the pads by the central station when the pads receive the clock signals, and

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the third lines providing in sequence the [first and second binary] indications from the central station to the individual ones of the pads of the vehicles addressed by such individual ones of the pads when the pads are interrogated by the central station [pads to the central station when the pads are interrogated by the central station].

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Claim 74 (amended): In a combination as set forth in claim ~~73~~ 71,

a plurality of lights in each of the pads, each of such lights providing an indication, when illuminated, of an individual one of the vehicles, and

means for illuminating an individual one of the lights in each of the pads in
5 accordance with the indication from the central station to such pad of the vehicle addressed
by such pad.

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Claim 75 (amended): In a combination as set forth in claim 72,

the second lines introducing the clock signals simultaneously to the different ones
of the pads to obtain a simultaneous interrogation of the different pads by the central station,
and

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the third lines providing the first and second binary indications simultaneously
from the central station to the individual ones of the pads of the vehicles addressed by such
individual ones of the pads [from the pads] when the pads are interrogated by the central
station.

77
Claim 76 (amended): In combination for use in a system including a central
station and a plurality of vehicles and a plurality of pads each [manually] operable to provide
first binary indications providing an address to any individual one of the vehicles and second
binary indications providing commands for operating the individual one of the vehicles and
5 each operable to provide the first and second binary indications to the central station for the
transmission by the central station to the vehicles of signals representing the first and second
binary indications from each of the pads,

10 a first line extending between the central station and the pads in the plurality to provide an interrogation of such pads of the first and second binary indications from such pads,

15 a plurality of second lines each extending between the central station and an individual one of the pads for providing clock signals to the individual one of the pads for controlling the time of the interrogation of such individual one of the pads by the central station, and

20 a plurality of third lines each extending between the central station and an individual one of the pads for providing the first and second binary indications from the individual one of the pads to the central station in response to the interrogation by the central station to the individual one of the pads,

the extension of the third lines between the central station and the pads providing for the decoupling of any one of the pads from the central station without affecting the provision of the first and second binary indications from the other ones of the pads to the central station.

78 77
Claim ~~77~~⁷⁸ (amended): In a combination as set forth in claim ~~76~~⁷⁷,

each of the third lines providing an indication from the central station to the individual one of the pads of the vehicle addressed by such individual one of the pads,

5 the extension of the third lines between the central station and the pads providing for [the] a decoupling of any one of the pads from the central station and for an elimination

of the indication in the pad of the vehicle addressed by the pad without affecting the provision of the indications from the central station to the other pads of the vehicles addressed by such other ones of the pads and providing for the addressing of the vehicle by any of the other pads.

79
Claim ~~78~~⁷⁹ (amended): In a combination as set forth in claim ~~76~~⁷⁷,

the extensions of the third lines between the central station and the pads providing for the extensions of additional third lines between additional pads and the central station to provide first and second binary indications from each of such additional pads to the central station in response to interrogations by the central station to the individual ones of such additional pads without affecting the provision of the first and second binary indications from the pads in the plurality to the central station and without affecting the provision of the indications from the central station to the pads in the plurality of the vehicles addressed by such pads in the plurality and to provide such binary indications at the instant that such extensions of the additional third lines are provided between the additional pads and the central station.

80
Claim ~~79~~⁸⁰ (amended): In a combination as set forth in claim ~~77~~⁷⁸,

the extensions of the third lines between the central station and the pads providing for the extensions of additional third lines between additional pads and the central station to provide first and second binary indications from each of such additional pads to the central

5 station in response to interrogations by the central station to the individual ones of such additional pads without affecting the provision of the first and second binary indications from the pads in the plurality to the central station and without affecting the provision of the indications from the central station to the pads in the plurality of the vehicles addressed by such pads in the plurality and to provide such binary indications at the instant that such extensions of the additional third lines are provided between the additional pads and the central station.

79
Claim ~~80~~ (amended): In combination for use in a system including a central station and a plurality of vehicles and a plurality of pads each [manually] operable to provide first binary indications providing an address to any individual one of the vehicles and second binary indications providing commands for operating the individual one of the vehicles and each operable to provide the first and second binary indications to the central station for the transmission by the central station to the vehicles of signals representing the first and second binary indications from each of the pads,

5 a first line extending between the central station and the pads in the plurality to provide an interrogation of such pads of the first and second binary indications from such pads,

10 a plurality of second lines each extending between the central station and an individual one of the pads for providing clock signals to the individual one of the pads for

controlling the time of the interrogation of such individual one of the pads by the central station, and

15 a plurality of third lines each extending between the central station and an individual one of the pads for providing the first and second binary indications from the individual one of the pads to the central station in response to the interrogation by the central station to the individual one of the pads,

20 the extensions of the third lines between the central station and the pads providing for the extensions of additional third lines between additional pads and the central station to provide first and second binary indications from each of such additional pads to the central station in response to interrogations by the central station to the individual ones of such additional pads without affecting the provision of the first and second binary indications from the pads in the plurality to the central station and without affecting the provision of the
25 indications from the central station to the pads in the plurality of the vehicles addressed by such pads in the plurality and to provide such binary indications at the instant that such extensions of the additional third lines are provided between the additional pads and the central station.

82

Claim 82 (amended): In combination for use in a system including a central station and a plurality of vehicles and a pad [manually] operable to provide first binary indications providing an address to any individual one of the vehicles and second binary indications providing commands for operating the individual one of the vehicles and

operable to provide the first and second indications to the central station for the transmission by the central station to the vehicles of signals representing the first and second binary indications from the pad,

a first line extending between the central station and the pad to provide an interrogation by the central station of such pad [of] with respect to the first and second binary indications in such pad,

a second line extending between the central station and the pad for providing clock signals to the individual one of the pads from the central station for controlling the time of the interrogation of such pad by the central station,

a third line extending between the central station and the pad for providing the first and second binary indications from the pad to the central station in response to the interrogation by the central station to the pad,

first means for storing the first and second binary indications in the pad, and

second means associated with the second and third lines for providing a transfer of the binary indications in the first means to the third line in synchronism with the clock signals on the second line when an interrogation of such pad is provided on the first line.

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Claim 83 (amended): In a combination as set forth in claim [79] 82 wherein

the first means stores the first and second binary indications in the pad in a parallel form and

5 the second means transfers the binary indications in the first means to the third
[means] line in a serial form.

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Claim 84 (amended): In a combination as set forth in claim 82 wherein

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the first line provides a first voltage [on the first line] to provide an interrogation
of the first and second binary indications in such pad in synchronism with the clock signals
on the second line and wherein

5 the central station provides through the first line to the pad signals identifying the
vehicle selected by the pad and wherein

the central station provides such identifying signals to the pad in synchronism
with the clock signals on the second line during the time that a second voltage different from
the first voltage is produced on the first line.

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5 Claim 86 (amended): In combination for use in a system including a central
station and a plurality of vehicles and a pad manually operable to provide first binary
indications providing an address to any individual one of the vehicles and second binary
indications providing commands for operating the individual one of the vehicles and
operable to provide the first and second binary indications to the central station for the
transmission by the central station to the vehicles of the first and second binary indications
from the pad,

10 a first line extending between the central station and the pad and having a first voltage at first particular times and having a second voltage at second particular times different from the first particular times,

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a second line extending between the central station and the pad to provide a transfer of information between the central station and the pad,

first means for interrogating the pad to determine the pattern of the first and second binary indications in the pad when the first line has the first voltage,

15 second means operative during the production of the first voltage on the first line for passing the first and second binary indications in the pad to the central station for the transmission to the vehicles by the central station of signals representing [of] such first and second binary indications [by the central station to the pad], and

20 third means operative during the production of the second voltage on the first line for transmitting to the pad through the second line from the central station signals identifying an individual one of the vehicles addressed by the first binary indications from the pad.

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Claim 88 (amended): In combination for use with a plurality of vehicles each having an individual address and each operable when receiving the individual address, a central station,

5 a plurality of pads each [manually] operable to address any individual one of the vehicles and each providing commands to operate the individual one the vehicles,

each of the pads being connected to the central station for receiving power from the central station to provide first binary indications addressing [the] any individual one of the vehicles and second binary indications providing commands for operating the vehicles,

first means in the central station for interrogating each of the pads, separately from the interrogations of the other pads, to determine the first and second binary indications from the pad[s],

second means in the pads for transmitting the first and second binary indications from the pads to the central station upon the interrogation of the pads by the central station,

third means in the central station for transmitting to the vehicles the first and second binary indications determined from each of the pads,

the central station and the pads being constructed to provide for a disconnection of any particular one of the pads from the central station and to provide for an addressing by any of the pads other than the disconnected pad of the vehicle previously being addressed by the disconnected pad.

the first means being operative to interrogate the other pads, without any interrogation of the particular one of the pads, instantaneously after [upon] the disconnection of the particular one of the pads from the central station,

the second means in the pads being operative to transmit the first and second binary indications from the other pads to the central station, without any transmission of any indications from the particular one of the pads to the central station, instantaneously after [upon] the disconnection of the particular one of the pads from the central station,

the third means in the central station being operative to transmit the first and second binary indications from the other pads to the vehicles, without any transmission by the third means of binary indications from the particular one of the pads to the vehicles,
30 instantaneously after [upon] the disconnection of the particular one of the pads from the central station, and

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35 fourth means responsive in the central station instantaneously to the disconnection of the particular one of the pads from the central station for freeing the vehicle addressed by the particular one of the pads to receive from the central station first binary indications provided by any [particular] one of the [other] pads other than the disconnected pad and representing the address of such vehicle and second binary indications provided by such [particular] one of the [other] pads and representing commands to such vehicle and for freeing the vehicle to be operated in accordance with such second binary indications.

89 88
Claim 89 (amended): In a combination as set forth in claim 88,

the first means being operative to interrogate the pads in the plurality on a cyclic basis before the disconnection of the particular one of the pads from the central station and to interrogate the pads in the plurality, other than the particular one of the pads, on the cyclic
5 basis instantaneously after the disconnection of the particular one of the pads from the central station.

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Claim 90 (amended): In a combination as set forth in claim 88,

the first means being operative to interrogate the pads in the plurality simultaneously before the disconnection of the particular one of the pads from the central station and to interrogate the pads in the plurality, other than the particular one of the pads, simultaneously and instantaneously after the disconnection of the particular one of the pads from the central station.

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Claim 91 (amended): In a combination as set forth in claim 88,

fifth means in each of the pads for providing for an illuminated indication in such pad of the individual one of the vehicles addressed by such pad, and

sixth means in each of the [pads] vehicles for providing in such [pad] vehicle an illumination indicating the addressing of such vehicle [individual one of the vehicles addressed by such pad], [and]

seventh means in the central station for discontinuing the illumination of [the individual one of the] vehicle[s] addressed by the particular one of the pads when the particular one of the pads is disconnected from the central station[.], and

eight means in the central station for discontinuing the illuminated indication in the particular one of the pads of the vehicle addressed by the particular one of the pads when the particular one of the pads is disconnected from the central station.

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Claim 92 (amended): In combination for use with a plurality of vehicles each having an individual address and each operable when receiving the individual address, a central station,

1 a plurality of pads each [manually] operable to address any individual one of the vehicles and each providing commands to operate the individual one of the vehicles, each of the pads being connected to the central station for receiving power from the central station to provide first binary indications addressing [the] any individual one of the vehicles and second binary indications providing commands for operating the individual one of the vehicles,

10 first means in the central station for interrogating each of the pads, separately from the interrogations of the other pads, to determine the first and second binary indications from such pad,

second means in the pads for transmitting the first and second binary indications from the pads to the central station upon the interrogation of the pads by the central station,

15 third means in the central station for transmitting to the vehicles signals representing the first and second binary indications determined from each of the pads,

the central station and the pads being constructed to provide for the connection of an additional pad to the central station,

20 the first means in the central station being operative to interrogate the pads in the plurality and the additional pad [upon] instantaneously after the connection of the additional pad to the central station,

the second means in the pads being operative to transmit the first and second binary indications from the pads in the plurality and the additional pad to the central station instantaneously after [upon] the connection of the additional pad to the central station, and

the third means in the central station being operative to transmit signals representing the first and second binary indications from the pads in the plurality and the additional pad to the vehicles in the plurality instantaneously after [upon] the connection of the additional pad to the central station.

Claim 93 (amended): In a combination as set forth in claim 92,

the first means being operative to interrogate the pads in the plurality on a cyclic basis before the connection of the additional pad to the central station and to interrogate the pads in the plurality and the additional pad on the cyclic basis instantaneously after the connection of the additional pad to the central station.

Claim 94 (amended) In a combination as set forth in claim 92,

the first means being operative to interrogate the pads in the plurality simultaneously before the connection of the additional pad to the central station and to interrogate simultaneously the pads in the plurality and the additional pad [simultaneously] instantaneously after the connection of the additional pad to the central station.

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Claim 95 (amended): In a combination as set forth in claim 92,
fourth means in each of the pads for providing for an illuminated indication in
such pad of [the] any individual one of the vehicles addressed by such pad,
fifth means in the central station for providing in such pad an illumination
indicating [the] any individual one of the vehicles addressed by such pad,
the fifth means in the central station being operative to continue the illumination
of the vehicles addressed by the pads in the plurality and to provide an illumination of the
vehicle addressed by the additional pad instantaneously after [when] the additional pad is
connected to the central station.

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Concluded

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Claim ~~96~~² (amended): In a combination as set forth in claim 1,
the pads in the plurality being connected to the central station, and
means in the central station for discontinuing the operation of the vehicle by the
individual one of the pads instantaneously after the individual [when the additional] one of
the pads is disconnected from the central station and for providing for the addressing of the
vehicle by any one of the pads still connected to the central station.

Claim 97 (amended): In a combination as set forth in claim 5,
the pads in the plurality being connected to the central station, and
means in the central station for providing for the operation of the individual one
of the vehicles by any [the individual] one of the pads still connected to the central station

5 instantaneously after the individual [when the second] one of the pads is disconnected from the central station.

65
Claim 98 (amended): In a combination as set forth in claim 66,

the central station providing indications, through the third line for each of the pads, to such pad of the individual one of the vehicles [selected] addressed by such pad, and means in each of the pads for indicating the individual one of the vehicles
5 addressed [selected] by such pad in accordance with the indications provided by the central station to such pad through the third line for such pad.

76
Claim 99 (amended): In a combination as set forth in claim 75,

a plurality of lights in each of the pads, each of such lights providing an indication, when illuminated, of an individual one of the vehicles addressed by the pad, and means for illuminating an individual one of the lights in each of the pads in
5 accordance with the indication from the central station to such pad of the vehicle addressed by such pad.

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Claim 100 (amended): In combination for use with a plurality of vehicles, a plurality of pads each operative to provide a first plurality of binary indications addressing any individual one of the vehicles and to provide a second plurality of binary

indications providing commands to such individual one of the vehicles for operating such vehicle,

a central station,

the pads in the plurality being connected to the central station,

first means in the central station for interrogating the pads to determine the first and second binary indications from such pads,

second means in the pads for transmitting the first and second binary indications from the pads to the central station, and

third means responsive in the central station to the identities of the first binary indications in successive transmissions of the first and second binary indications from each individual one of the pads to the central station for transmitting to the vehicles signals representing the first and second binary indications for such pad [to the vehicles in the plurality],

fourth means in the central station for providing a transmittal by the second means at each instant only of the second binary indications from the pads which are providing changes in address or commands at that instant.

97
Claim 101 (amended) ~~to be claim 100 or independent claim 100~~ In a combination as set forth in claim 100, ~~§ 96~~

[means in the central station for transmitting at each instant only the second binary indications from the pads which are providing changes in commands at that instant.]

an additional pad being connected to the central station, and

5

fifth means in the central station for providing for an addressing by the additional pad of any of the vehicles not being addressed by the pads in the plurality and for providing for a transmission by the third means of the signals representing the first and second binary indications for the additional pad to the vehicles in the plurality instantaneously after the additional pad is connected to the central station.

98

Claim 102 (amended)

~~with claim 100 as independent form and~~
 In a combination as set forth in claim 100, ⁹⁶

the first means in the central station being operative to interrogate the pads on a cyclic basis to obtain the binary indications from each of the pads, on the cyclic basis with the other pads, of the individual one of the vehicles addressed by such pad and the binary indications for providing commands for operating the individual one of the vehicles.

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Claim 103 (amended): In a combination as set forth in claim 100,

the first means in the central station being operative to simultaneously interrogate the pads to obtain simultaneously from the pads the first binary indications providing the addresses for the individual ones of the vehicles and the second binary indications providing the commands for operating the individual ones of the vehicles.

5

100

Claim 104 (amended): In combination for operating a vehicle in accordance with addresses and commands provided by a [pair] plurality of [handheld] pads and transmitted by a central station to the vehicle,

first means in the vehicle for receiving the addresses and commands provided by
5 the pads and transmitted by the central station,

second means in the vehicle for identifying the received addresses as those of the
vehicle,

third means responsive in the central station to the identification of the addresses
received from the pads as those of the vehicle for providing for an execution of the received
commands by the vehicle in accordance with such commands when the identified commands
are complementary, and

fourth means responsive in the central station to the identification of the addresses
received from the pads as those of the vehicle for providing for an execution by the vehicle
of commands different from the commands provided by the pads when the commands are
15 contradictory.

102
Claim ~~105~~ (amended): In a combination as set forth in claim ~~104~~, *100*

fifth means responsive in the vehicle to the discontinuance of one of the pads in
the plurality in addressing the vehicle for continuing the response of the vehicle to the
addresses and commands from the [other one of the] pads [in the pair] still addressing the
5 vehicle.

21
Claim 106 (amended): In a combination as set forth in claim 23, 20

the first means being operative to interrogate the pads in the plurality and [an] the
additional pad on a cyclic basis,

the second means being responsive on the cyclic basis to the interrogation
provided by the first means of the pads in the plurality and the additional pad for sending the
addresses and commands to the addressed vehicles to obtain an operation of such vehicles in
accordance with such commands.

Claim 107 (amended): In a combination as provided in claim 2[6]3,

the first means being operative to interrogate the pads [on a cyclic basis] in the
plurality and the additional pad simultaneously.

the second means being responsive to the simultaneous interrogation provided by
the first means of the pads in the plurality and the additional pad for sending the addresses
and commands to the addressed vehicles to obtain an operation of such vehicles in
accordance with such commands.

Claim 108 (amended): In combination for use in a system including a plurality of
vehicles each responsive to an individual address and to a plurality of commands for
providing individual operations of vehicles in accordance with such commands,
a plurality of pads each operative to provide an address for selecting any
individual one of the vehicles and to provide commands to such individual one of the

vehicles for operating such individual one of the vehicles in accordance with such commands,

a central station, [connected to the pads] the pads being connected to the central station,

first means in the central station for interrogating the pads [on a cyclic basis] to determine the address and the commands provided by such pads,

second means responsive in the central station to the interrogation provided by the first means in the central station concerning the address and the commands from [such] each pad for receiving the address and the commands from such pad and for transmitting to the vehicles signals representing the address and the commands from such pad [to the vehicles in the plurality], and

third means responsive in the central station to any change in the address or commands from an individual one of the pads for transmitting the address and the commands from such pad to the vehicles in the plurality on a priority basis relative to the address and commands from the other pads in the plurality.

Claim 109 (amended): In a combination as set forth in claim 108 wherein the central station discontinues [the] an interrogation of any pad which is disconnected from the central station instantaneously after the pad is disconnected from the central station and wherein

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contd

the central station provides for the addressing by any of the pads still connected to the central station of the vehicle previously addressed by the disconnected pad.

Such
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contd

Claim 111 (amended): In combination for use in a system including a plurality of vehicles each responsive to an individual address and to a plurality of commands for providing individual operations of vehicles in accordance with such commands, a plurality of pads each operative to provide an address for selecting any individual one of the vehicles and to provide commands to such individual one of the vehicles for operating such individual one of the vehicles in accordance with such commands,

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a central station [connected to the pads,] the pads being connected to the central station.

10 first means in the central station for interrogating the pads [on a cyclic basis] to determine the address and the commands provided by such pads,

second means responsive in the central station to the interrogation provided by the first means in the central station concerning the address and the commands from such pads for receiving the address and the commands from such pads and for transmitting the address and the commands from such pads to the vehicles in the plurality, and

15 third means responsive in the central station to the [coupling] connection of an individual one of the pads to the central station and to the reception by the [such] central station of the [an] address and commands from such individual one of the pads for

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initially
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transmitting such address and commands from such individual one of the pads on a priority basis relative to the transmission of the address and commands from the other ones of the

pads in the plurality

Claim 112 (amended): In a combination as set forth in claim 111 wherein the central station is operative to transmit [for transmitting] to the vehicles at each instant only the addresses and commands from the pads which are providing changes in addresses or commands at that instant.

Claim 122 (amended): In combination for use in a system including a plurality of vehicles each responsive to an individual address and to a plurality of commands for providing individual operations of the vehicles in accordance with such commands, a plurality of pads each operative to provide an address for selecting any individual one of the vehicles and to provide commands to such individual one of the vehicles for operating such individual one of the vehicles in accordance with such commands,

a central station [connected to the pads], the pads being connected to the central station,

first means in the central station for interrogating the pads to determine the address and the commands provided by such pads,

second means responsive in the pads to the interrogation by the central station for transmitting the address and the commands from the pads to the central station,

third means in the central station for receiving the addresses and the commands transmitted by the pads to the central station, and

fourth means in the central station for transmitting to the vehicles in the plurality only the address and commands transmitted from each pad to the central station that are different from the immediately preceding address or commands transmitted from such pad to the central station.

Claim 123 (amended): In a combination as set forth in the claim 122,

the first means in the central station being operative to interrogate the pads simultaneously [on a cyclic basis] and the pads being operative to transmit the addresses and the commands from such pads to the central station when interrogated.

Claim ¹¹²124 (amended): In combination for use in a system including a plurality of vehicles each responsive to an individual address and to a plurality of commands for providing individual operations of the vehicles in accordance with such commands, a plurality of pads each operative to provide an address for selecting any individual one of the vehicles and to provide commands to such individual one of the vehicles for operating such individual one of the vehicles in accordance with such commands,

a central station [connected to the pads], the pads being connected to the central station.

10 a plurality of first switches each included in an individual one of the pads and having first and second [modes] states[,] of operation and operative in the first [mode] state a successive number of times to address any individual one of the vehicles,

each of the pads including a plurality of lights each indicating an individual one of the vehicles when illuminated,

15 first means in the central station for remembering at each instant the individual ones of the vehicles being addressed by the pads at that instant,

a plurality of second switches each having first and second operative relationships and each disposed in an individual one of the pads and each operative in the first relationship to provide for the [selection] addressing of only one of the vehicles by such individual one
20 of the pads and operative in the second relationship to provide for the addressing by any other one of the pads of the [same] vehicle simultaneously being addressed by such individual one of the pads,

second means responsive in each of the pads to the operation of the first means in the central station and to the operation of the second switch in each [such] pad in the first
25 relationship for skipping over the lights representing in such pad the vehicles being addressed by the other pads when the first switch in such pad receives successive actuations to the first [mode] state of operation, and

third means responsive[,] in the other one of the pads to the operation of the first means in the central station and to the operation of the second switch in the individual one of the pads in the second relationship[,] for including, in the sequence of lights in such other one of the pads, the light in the vehicle addressed by such individual one of the pads in the second [mode] state of operation of the second switch in such individual one of the pads even when such vehicle is simultaneously being addressed by another one of the pads.

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cont'd

Claim ¹¹³125 (amended): In a combination as set forth in claim ¹¹²124, means in the central station for transmitting the address and commands from the individual one of the pads and the [such] other one of the pads to the vehicle addressed by such individual one of the pads when the second switch in [such] the individual one of the pads is in the second [mode] state of operation.

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Claim 126 (amended): In combination, a plurality of vehicles each having an individual address, a plurality of pads each operative to provide an address for selecting any individual one of the vehicles and to provide commands to such individual one of the vehicles for operating such individual one of the vehicles in accordance with such commands, a central station [connected to the pads], the pads being connected to the central station.

each of the pads being operative to transmit the address and the commands from such pad to the central station for transmission by the central station to the vehicles, each individual one of the vehicles having a light for illumination when such vehicle is addressed and commanded by the central station as a result of the address and commands from an individual one of the pads,

first means in the central station for storing the addressing by each individual one of the pads of the individual one of the vehicles,

second means in the central station for communicating a command to the individual one of the vehicles to extinguish the light in such vehicle instantaneously after [when] the individual one of the pads providing the address and the commands to such individual one of the vehicles becomes disconnected from the central station, and

third means in each individual one of the vehicles for extinguishing the light in such individual one of the vehicles in accordance with the communication from the central station.

Claim 127 (amended): In a combination as set forth in claim 126,

fourth means in the central station for eliminating the storage of the addressing by each individual one of the pads of the individual one of the vehicles instantaneously after [when] such individual one of the pads becomes disconnected from the central station.

116
Claim 128 (amended): ~~In a combination as set forth in claim 127~~ ¹¹⁵

fifth means in the central station for interrogating [on a cyclic basis] the pads connected to the central station to determine the address and the commands from such pad to the vehicles,

5 sixth means for receiving in the vehicles from the central station the address and the commands [from] provided by each of the pads upon the interrogation of such pad by the central station, and

10 seventh means in the central station for eliminating one of the pads from the [cyclic] interrogation by the central station, [when] instantaneously after such pad becomes disconnected from the central station, without affecting the interrogation of the other pads by the central station and for providing for the addressing by any of the other pads of the vehicle previously addressed by the disconnected pad.

Claim 146 (amended): In combination for use with a plurality of pads each operative to provide an address and commands and a central station for transmitting at a particular frequency a carrier signal modulated with the addresses and commands from the pads,

a vehicle,

means in the vehicle for receiving from the central station the carrier signals modulated with the address individual to such vehicle,

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means for powering the vehicle in accordance with the reception by such vehicle of the modulated carrier signals individual to such vehicle,

means in the vehicle for demodulating the modulated carrier signals to recover the commands individual to such vehicle,

the vehicle including wheels for moving the vehicle and including motors for rotating the wheels,

means in the receiving means for providing pulse width modulations for energizing the motors in the vehicle to move the vehicle, the pulse width modulations providing progressive increments of time for energizing the motors to accelerate the vehicle, and

means in the receiving means for progressively energizing the motors with the pulse with modulations for the progressive increments of time to accelerate the motors.

Claim 148 (amended): In combination,

a plurality of vehicles each responsive to an individual address provided to such vehicle and each operative in accordance with commands provided to such vehicle after the reception by such vehicle of such individual address,

a plurality of pads each operative to provide [the] addresses individual to any one of such vehicles and to provide [the] commands for operating such vehicle[s],

a central station operatively coupled to the pads for receiving the addresses and the commands from the pads and for transmitting [such addresses and commands] to the

vehicles addresses and commands in packets each composed of a plurality of binary
10 indications representing the address and the commands for any individual one of the vehicles
and each having start bits at the beginning of the packet and having the address and
commands following the start bits [and having the commands following the address, the
packets from the different pads in the plurality following one another] with no time
separation between successive ones of the packets,

15 means in the central station for transmitting the packets of the binary indications
to the vehicles,

means in the vehicles for receiving the packets of the binary indications
transmitted by the central station, [and]

means responsive in each of the vehicles to the address individual to such vehicle
20 for operating the vehicle in accordance with the commands following such address[.], and

means in the central station for regulating the rate of transmitting the bits in the
packets to the vehicles in accordance with the time between the start bits in the successive
packets of the binary information.

120
Claim 149¹¹⁹ (amended): In a combination as set forth in claim 148¹¹⁹,

each of the vehicles having wheels,

each of the vehicles having an operating member different from the wheels, and

each of the packets including first commands for providing for a [rotating]

5 rotation of the wheels in an individual one of the vehicles in accordance with the binary

indications representing in such packet such individual one of the vehicles and including second commands [for rotating the wheels in such individual one of the packets and including third commands] for providing an [operating] operation of the member in such individual one of the packets,

means in each of the vehicles for rotating the wheels in such vehicle in accordance with the first commands in the packets addressed to such vehicle, and

means in each of the vehicles for operating the operating member in such vehicle in accordance with the second commands in the packets addressed to such vehicle.

PLEASE ADD THE FOLLOWING NEW CLAIMS:

⁶⁴152. In a combination as set forth in claim ~~66~~, ⁶⁴

the third lines providing the first and second binary indications when the clock signals on the third lines have the other one of the first and second polarities

¹⁰¹

¹⁰⁰153. In a combination as set forth in claim ~~104~~,

a memory in the vehicle for storing the contradictory commands and for storing a special command to be executed by the vehicle when the commands provided by the pads are contradictory, and

means responsive in the vehicle to the special command in the memory for providing an execution by the vehicle of the special command when the commands in the vehicle are contradictory.

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154. In a combination as set forth in claim 108 wherein

the central station initiates an interrogation of any pad which is connected to the central station, instantaneously after the pad is connected to the central station, to determine if the pad has addressed any one of the vehicles not then being addressed by any of the other pads.

155. In combination for use with a plurality of vehicles each having an individual address and having members for moving the vehicles,

a central station,

a plurality of pads each operatively connected to the central station and each operative to provide addresses individual to any one of such vehicles and to provide commands for operating such vehicle,

the central station being operative to receive the addresses and commands from the pads and to transmit to the vehicles addresses and commands in packets each composed of a plurality of binary indications representing the address and the commands for an individual one of the vehicles,

means in the central station for transmitting the packets of the binary indications to the vehicles,

each of the pads including a switch actuatable a number of times to select any one of the vehicles, the particular number of times being dependent upon the particular one of the vehicles to be addressed by the pad,

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cont'd

memory means in the central station for remembering each of the vehicles addressed at any instant and the pad addressing the vehicle, and

means in the central station for preventing each of the pads from addressing one of the vehicles already being addressed by another one of the pads.

Write claim 155 and add

156. (In a combination as set forth in claim 155)

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copy

there being a plurality of light illuminable members in each pad, each of the light illuminable members being operable, when illuminated, to indicate an individual one of the vehicles,

5 the preventing means in the central station being operable to prevent each pad from illuminating light illuminable members individual to vehicles being addressed by the other pads.

Note additional changes in claim 156: see following amendment

157. In combination for use with a plurality of vehicles each having an individual address and having members for moving the vehicles, a central station,

5 a plurality of pads coupled to the central station, each of the pads having a first member actuatable a sequential number of times to address any one of the vehicles dependent upon the number of actuations and having second members actuatable to provide for a movement of the addressed vehicle,

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means in the central station for interrogating the pads to determine the number of actuations of the first member in each of the pads and to determine the actuations of the second members in each of the pads,

means in the central station for providing for each of the pads first binary indications addressing the vehicle being selected by the pad and second binary indications relating to the movements to be provided in the vehicle,

means in the central station for remembering each pad and the vehicle selected by the pad and for providing for the transmittal of such information to the pads, and

C-17
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means responsive in the pads to the remembered information transmitted to the pads from the central station for skipping in each pad the binary indications of vehicles already being addressed by others of the pads when the first member in the pad is actuated the sequential number of times.

158. In a combination as set forth in claim 157,

there being in each pad a plurality of light illuminating members each one for a different one of the vehicles and each being illuminable to identify the vehicle selected by the pad, and

5

means responsive in each pad to the remembered information transmitted to the pad from the central station for skipping the light illuminating members indicating the vehicles already being addressed by others of the pads when the first member in the pad is actuated the sequential number of times to address one of the vehicles.

10 Sub 514
159. In combination for use in a system including a plurality of vehicles each responsive to an individual address and to a plurality of commands for providing individual operations of such vehicles in accordance with such commands,

15 C-17 Cont'd
a plurality of pads, each individual one of the pads including a plurality of switches having first and second states of operation for providing an address to select any individual one of the vehicles and for providing commands to such individual one of the vehicles for operating such individual one of the vehicles in accordance with such commands,

20 a central station, the pads being connected to the central station for interrogation simultaneously by the central station concerning the states of operation of the switches in the pads,

first means responsive in the pads to the simultaneous interrogation by the central station of the states of operation of the switches in the pads for transmitting to the central station binary indications of such states of operation, and

25 second means responsive in the central station to the binary indications of the states of operation of the switches in the pads for transmitting to the vehicles signals representing such binary indications.

160. In a combination as set forth in claim 159,

the first means being responsive in the pads to the simultaneous interrogations by the central station of the states of operation of the switches in the pads for simultaneously

5 *Sub
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changed*
transmitting to the central station the binary indications of the states of operation of the switches in the pads in the plurality.

161. In a combination as set forth in claim 159,
the second means being responsive in the central station to the simultaneous transmission to the central station of the binary indications of the states of operation of the switches in the pads in the plurality for transmitting to the vehicles in sequence the signals representing such binary indications for the different pads in the plurality.

17 *changed*
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124
162. In combination at a central station for controlling the operation of a plurality of vehicles in accordance with the addressing of the vehicles by pads in a plurality and in accordance with the operation in the pads of controls to obtain the performance of functions in the vehicles,

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first means for simultaneously interrogating the pads in the plurality to determine from the pads the addressing of the vehicles and the functions to be performed in the addressed vehicles,

second means for receiving from the pads binary indications of the vehicles addressed by the pads and the functions to be performed in the addressed vehicles,

10
third means responsive to the binary indications from the pads for providing signals representing the binary indications, and

fourth means for transmitting to the vehicles the signals representing the binary indications from the pads.

125 124
163. In a combination as set forth in claim ~~162~~,

the third means being simultaneously responsive to the binary indications from the pads in the plurality to simultaneously provide the signals representing the binary indications.

120 125
~~164~~. In a combination as set forth in claim ~~163~~,

the fourth means being operative to transmit in sequence to the vehicles in the plurality the signals representing the binary indications from each individual one of the pads.